# Developing a local flood risk management strategy
# Annex 3: Who does what and why? – An aid to stakeholder analysis

Pennine Water Group, University of Sheffield in collaboration with the partners of the FloodResilienCity and MARE projects

*Co funded by the European Union through the European Regional Development Fund*

FV: 130115

## Who does what and why analysis and its benefits

Who does what analysis is a simple tool which helps to build up a picture of what the stakeholders in any process do. Once completed the results can be used for a number of tasks such as

- identifying which stakeholders carry out what tasks and whether they are doing it voluntarily, through statutory powers or through statutory duties. This exercise also identifies the tasks which are not carried out.
- Identifying the departmental responsibilities for the tasks within each stakeholder organisation
- identifying what the stakeholder organisations and departments should be doing if the tasks not currently performed are to be addressed, and to prioritise these based on legislation and resources.
- Identifying and improving channels of communication and data flows to minimise the effort in carrying out the task,
- identifying the need for raising awareness, improving competencies and building capacity, and
- Identifying what changes to policy might be beneficial.

## How to do it

The analysis is carried out within a framework which describes tasks which practitioners need to carry out to achieve their goals. In the case of Flood Risk Management, the framework comprises a grid of different types of water body along one side and a list of topics describing the practice of flood risk management along the other. The different topics are presented in three tables describing:

- Analysis and Assessment
- Alleviation and Avoidance, and
- Action and Assistance

These three groupings of topics are key to the description of flood risk management. Analysis and assessment bring objectivity to all the tasks. Alleviation and Avoidance measures are applied to reduce the risk of flooding and Action and Assistance are what are done to reduce the residual risk.

### Different approaches to the process

The approach to who does what and why analysis is flexible and can reflect the requirements of any particular group of stakeholders.

One group might like to adopt a top down approach where a group of participants from the main stakeholders meet to identify which stakeholder organisation does what and then each stakeholder organisation can identify which of its divisions does what.

Alternatively the approach could start with individuals analysing what they do and then extending the process to others within their own organisation and then on to others.

### Different degrees of complexity and benefit

To start off, the process can be made very simple while participants get used to what they are doing. All that is needed is for individuals to put ticks in those cells which are relevant to them. A further degree of complexity and value can be added by

identifying those tasks with are legal duties, those which are legal powers and those which are done voluntarily. This can be taken a step further by identifying the legislation which gives the duties and powers. But the decision is up to the participants.

## Application

Application is straight forward. If you want to have a go, just start with the table that is most relevant to you. Don't worry about the types of water body that aren't relevant to you (such as coastal water when you are five hundred kilometres from the coast) and tick the relevant cells. If you are working as a group make sure that you record which member of the group deals with which cell. If you need to add extra topics, add them. The tables as they stand are a reasonable representation of flood risk management, but there is always room for improvement. Similarly you might like to add additional types of water.

You might like to keep a list of different stakeholders and their roles. An additional table is provided for this.

## Feedback

If you enhance the tables or think of some advice about how to go about the process, please give us some feedback so we can share it with others.

We would also like to share what you can do with the tables once they are completed. We've thought of some beneficial uses, but we don't claim to have identified them all, so please let us have any ideas. Email to j.blanksby@sheffield.ac.uk

## The tables

The next four pages contain the tables as they stand at the moment. Following this there are four examples of how they have been filled in

**Table 1: Partner involvement in flood analysis and assessment (110722)**

This table may be used to identify who does what modelling etc.

| | | Exceedence pathways | Surface water and soil | | | | Ground water | | | Drainage infrastructure | | | | Small Streams and ponds | Large Streams and ponds | Rivers and lakes | Artificial water bodies | | | | Estuaries | Deltas | Fjords and inlets | Open sea |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rural green space | Green space at urban fringe | Green space within urban area | Developed urban surface | Artificial superficial deposits | Natural superficial deposits | Bedrock | Sewers | SUDS/Source control | Pipe drain | Open Drain | | | | Drainage channels | Ponds and Lakes | Canals | Reservoirs | | | | |
| Data collection and management | Rainfall | | | | | | | | | | | | | | | | | | | | | | | |
| | Wind speed | | | | | | | | | | | | | | | | | | | | | | | |
| | Temperature | | | | | | | | | | | | | | | | | | | | | | | |
| | Humidity | | | | | | | | | | | | | | | | | | | | | | | |
| | Soil water deficit | | | | | | | | | | | | | | | | | | | | | | | |
| | Snow | | | | | | | | | | | | | | | | | | | | | | | |
| | Ice | | | | | | | | | | | | | | | | | | | | | | | |
| | Asset records | | | | | | | | | | | | | | | | | | | | | | | |
| | Flow and depth | | | | | | | | | | | | | | | | | | | | | | | |
| | Incident data | | | | | | | | | | | | | | | | | | | | | | | |
| | Land use | | | | | | | | | | | | | | | | | | | | | | | |
| | Topography | | | | | | | | | | | | | | | | | | | | | | | |
| Modelling | Rainfall | | | | | | | | | | | | | | | | | | | | | | | |
| | Snow | | | | | | | | | | | | | | | | | | | | | | | |
| | Ice | | | | | | | | | | | | | | | | | | | | | | | |
| | Likelihood and consequences (level of risk) | | | | | | | | | | | | | | | | | | | | | | | |
| | Modelling joint probabilities | | | | | | | | | | | | | | | | | | | | | | | |
| | Residual risk | | | | | | | | | | | | | | | | | | | | | | | |
| | Climate change | | | | | | | | | | | | | | | | | | | | | | | |
| | Demographic change | | | | | | | | | | | | | | | | | | | | | | | |
| | Land use change | | | | | | | | | | | | | | | | | | | | | | | |
| Economic damage assessment | | | | | | | | | | | | | | | | | | | | | | | | |
| Mapping | Hazard, probability and risk | | | | | | | | | | | | | | | | | | | | | | | |
| | Mapping joint probabilities | | | | | | | | | | | | | | | | | | | | | | | |
| Flood forecasting | | | | | | | | | | | | | | | | | | | | | | | | |

**Table 2: Partner involvement in flood alleviation and avoidance (110702)**

This table may be used to identify the partners involved in developing and implementing appropriate measures for alleviating current flood risk and avoiding future risk. Many, but not all flood risk management measures are applicable to alleviation and avoidance so makes sense to merge the two. These stakeholders should work closely with those identified in Table 3 to manage flood risk

| | | Exceedence pathways | Surface water and soil | | | | Ground water | | | Drainage infrastructure | | | | Small Streams and ponds | Large Streams and ponds | Rivers and lakes | Artificial water bodies | | | | Estuaries | Deltas | Fjords and inlets | Open sea |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rural green space | Green space at urban fringe | Green space within urban area | Developed urban surface | Artificial superficial deposits | Natural superficial deposits | Bedrock | Sewers | SUDS/Source control | Pipe drain | Open Drain | | | | Drainage channels | Po Ponds and Lakes | Canals | Reservoirs | | | | |
| Strategy and master planning | Regulation | | | | | | | | | | | | | | | | | | | | | | | |
| | Support | | | | | | | | | | | | | | | | | | | | | | | |
| | Zoning, ordinances and maps | | | | | | | | | | | | | | | | | | | | | | | |
| Development control | Regulation | | | | | | | | | | | | | | | | | | | | | | | |
| | Support | | | | | | | | | | | | | | | | | | | | | | | |
| Building control | Regulation | | | | | | | | | | | | | | | | | | | | | | | |
| | Support | | | | | | | | | | | | | | | | | | | | | | | |
| Water management | Regulation | | | | | | | | | | | | | | | | | | | | | | | |
| | Support | | | | | | | | | | | | | | | | | | | | | | | |
| Promoting/requiring flood risk adapted land use | | | | | | | | | | | | | | | | | | | | | | | | |
| Promoting/requiring water sensitive urban design | | | | | | | | | | | | | | | | | | | | | | | | |
| Promoting/requiring resilient and resistant infrastructure | | | | | | | | | | | | | | | | | | | | | | | | |
| Promoting/requiring resilient and resistant buildings (Flood adaptive architecture) | | | | | | | | | | | | | | | | | | | | | | | | |
| Responsibilities for surface water management | | | | | | | | | | | | | | | | | | | | | | | | |
| Responsibilities for surface water maintenance | | | | | | | | | | | | | | | | | | | | | | | | |
| Responsibilities for developing alleviation options | | | | | | | | | | | | | | | | | | | | | | | | |
| Responsibilities for assessing and approving alleviation options | | | | | | | | | | | | | | | | | | | | | | | | |
| Promoting/requiring appropriate use of adaptive and non adaptive responses | | | | | | | | | | | | | | | | | | | | | | | | |
| Promoting/requiring flood minimisation by flow management | | | | | | | | | | | | | | | | | | | | | | | | |
| Promoting use of insurance as a FRM measure | | | | | | | | | | | | | | | | | | | | | | | | |
| Promoting use of reserve funds as a FRM measure | | | | | | | | | | | | | | | | | | | | | | | | |
| Responsibilities for FRM programme development | | | | | | | | | | | | | | | | | | | | | | | | |
| Responsibilities for FRM programme implementation | | | | | | | | | | | | | | | | | | | | | | | | |

**Table 3: Partner involvement in action and assistance (110702)**

This table may be used to identify the partners involved in taking action where they are the risk owners and assisting communities to prepare for, manage and recover from flood events. These partners should work closely with those identified in Table 2 to manage flood alleviation and avoidance. Because the many of the partners in this table assist communities with all types of emergency and are very busy, all partners in the water and land management sector are advised to adopt a common framework to ease communication and improve the effectiveness of collaborative working.

| | | Exceedence pathways | Surface water and soil | | | | Ground water | | | Drainage infrastructure | | | | Small Streams and ponds | Large Streams and ponds | Rivers and lakes | Artificial water bodies | | | | Estuaries | Deltas | Fjords and inlets | Open sea |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rural green space | Green space at urban fringe | Green space within urban area | Developed urban surface | Artificial superficial deposits | Natural superficial deposits | Bedrock | Sewers | SUDS/Source control | Pipe drain | Open Drain | | | | Drainage channels | Ponds and Lakes | Canals | Reservoirs | | | | |
| Preparing for floods | Insurance of residual risk | | | | | | | | | | | | | | | | | | | | | | | |
| | Reserve funds | | | | | | | | | | | | | | | | | | | | | | | |
| | Emergency Response | | | | | | | | | | | | | | | | | | | | | | | |
| | Evacuation and rescue plans | | | | | | | | | | | | | | | | | | | | | | | |
| | Recovery plans | | | | | | | | | | | | | | | | | | | | | | | |
| Flood warnings | Email | | | | | | | | | | | | | | | | | | | | | | | |
| | SMS On-line | | | | | | | | | | | | | | | | | | | | | | | |
| | Door knocking | | | | | | | | | | | | | | | | | | | | | | | |
| | Web site | | | | | | | | | | | | | | | | | | | | | | | |
| | Press | | | | | | | | | | | | | | | | | | | | | | | |
| | Radio/TV | | | | | | | | | | | | | | | | | | | | | | | |
| Responding to emergencies | Temporary flood protection | | | | | | | | | | | | | | | | | | | | | | | |
| | Telecommunications network | | | | | | | | | | | | | | | | | | | | | | | |
| | Transportation | | | | | | | | | | | | | | | | | | | | | | | |
| | Evacuation facilities | | | | | | | | | | | | | | | | | | | | | | | |
| | Emergency infrastructure | | | | | | | | | | | | | | | | | | | | | | | |
| The “All clear” process (at the end of the emergency) | | | | | | | | | | | | | | | | | | | | | | | | |
| Helping recovery | | | | | | | | | | | | | | | | | | | | | | | | |

| Ref. No. | Table 4: Stakeholders and their roles (110722)<br><br>In this table A means an advisory role and D means a decision making role<br><br>The reference numbers of the stakeholders can be used in the completion of Tables 1 - 3. | Developers | | Long term ownership | | Interest | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | Regulators | | | | | | | | | | | | Planning bodies | | | | | | | | | | Knowledge development | | | | | |
| | | | | | | Wild life | | Heritage | | Environment | | Water quality | | Water quantity | | Emergency plannning | | Strategy planners | | Development control | | Building control | | Road/Transport | | Initiators | | Create state of the art knowledge | | knowledge maintenance | |
| | | A | D | A | D | A | D | A | D | A | D | A | D | A | D | A | D | A | D | A | D | A | D | A | D | A | D | A | D | A | D |
| | Public authorities and water utility organisations | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | People, organisations and communities | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Interest groups | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | Knowledge institutions | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

## Examples

The following examples show how the tables can be completed by differing groupings of stakeholders.

Table 1 was completed by a group of staff from Sheffield City Council a partner in the MARE project, to show what activities the City council do. In addition it shows their view on what other stakeholders do

Table 2 was completed by participants from Hoogheemraadschap Hollands Noorderkwartier, the water authority for the area of North Holland which lies to the north of the North Sea Canal and a partner in the SKINT project

Table 3 was completed by Stadtwerke Mainz a partner in the FRC project in its role as developer in the regeneration of the Custom Harbour site by the River Rhine

Table 4 was completed by participants from the City of Hannover, The Hannover Region and the Hannover Water Company which is owned by the city. The table identifies the role of all the main stakeholders in the flood risk management process within Hannover and partners in the MARE project

These examples show the different degrees of complexity that have been used and include bottom up and top down approaches.

Because the framework is based on practice rather than legislation and institutions it can be used to facilitate the sharing of knowledge and experience between organisations in different countries.

**Table 1: Stakeholder involvement in flood analysis and assessment**

This table may be used to identify who does what modelling etc.
1 – Sheffield City Council
2 - Environment Agency
3 - Water and Sewage Company (Yorkshire Water)
4 - English Heritage
5 – Landowners
6 – Insurance companies
D – Duty
P – Power
V - Voluntary

| | | Exceedence pathways | Surface water and soil | | | | Groundwater | | | | Drainage infrastructure | | | | Small Streams and ponds | Large Streams and ponds | Rivers and lakes | Artificial water bodies | | | Estuaries | Deltas | Open sea |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rural green space | Green space at urban fringe | Green space within urban area | Developed urban surface | Ground) | Artificial superficial deposits(Made, Worked, In filled, Disturbed or Landscaped | Natural superficial deposits | Bedrock | Sewers | SUDS/Source control | Pipe drain | Open Drain | | | | Drainage channels | Canals | Reservoirs | | | |
| Data collection and management | Rainfall | | | | | | | | | | | | | | | | | | | | | | |
| | Flow and depth | | | | | | | | | | 3D | | 5V | 5V | | | | | | | | | |
| | Incident data | | 1D | 1D | 1D | 1D | | | 1D | 1D | 1D, 3D | | 1D, 5V | 1D, 5V | 1D | 1D | 2D | 1D, 2V | 1D, 2V | 1D, 2D, 5D | | | |
| Modelling | Rainfall | | | | | | | | | | | | | | | | | | | | | | |
| | Probability and consequences (risk) | | | | | 1V | 1V | | | | 3D | | 1V | 1V | 1V | 1V | | | | | | | |
| | Modelling joint probabilities | | | | | 1V | | | | | | | 1V | 1V | 1V | 1V | 2V | | | 5D | | | |
| Economic damage assessment | | | | | | | 6V | | | | 6V | | 6V | | 6V | 6V | 6V | 6V | 6V | 6V | 6V | 6V | 6V |
| Mapping | Hazard, probability and risk | | | | | | | | | | | | | | | 1V | 2D | | | | | | |
| | Mapping joint probabilities | | | | | | | | | | 3D | | | | | | | | | 5D | | | |
| Flood forecasting | | | | | | | | | | | | | | | | | | 2 V | | | 2V | 2V | 2V |

**Table 2: Partner involvement in flood alleviation and avoidance**

This table may be used to identify the partners involved in developing and implementing appropriate measures for alleviating current flood risk and avoiding future risk. Many, but not all flood risk management measures are applicable to alleviation and avoidance so makes sense to merge the two. These stakeholders should work closely with those identified in Table 3 to manage flood risk

| | | Exceedence pathways | Surface water and soil | | | | Ground water | | | Drainage infrastructure | | | | Small Streams and ponds | Large Streams and ponds | Rivers and lakes | Artificial water bodies | | | Estuaries | Deltas | Fjords and inlets | Open sea |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rural green space | Green space at urban fringe | Green space within urban area | Developed urban surface | Artificial superficial deposits | Natural superficial deposits | Bedrock | Sewers | SUDS/Source control | Pipe drain | Open Drain | | | | Drainage channels and ponds | Canals and lakes | Reservoirs | | | | |
| Strategy and master planning | Regulation | | | | | | D | D | | | | | | | | | D | D | | | | | |
| | Guidance | | | | | | D | D | | | | | | | | | D | D | | | | | |
| | Zoning, ordinances and maps | | | | | | | | | | | | | | | | D | D | | | | | |
| Development control | Regulation | | | | | | | | | | | | | | | | | | | | | | |
| | Guidance | | | | | | D | D | | | | | | | | | D | D | | | | | |
| Building control | Regulation | | | | | | | | | | | | | | | | | | | | | | |
| | Guidance | | | | | | D | D | | | | | | | | | D | D | | | | | |
| Promoting/requiring water sensitive urban design | | | | | | | P | P | | | | | | | | | P | P | | | | | |
| Promoting/requiring resilient and resistant infrastructure | | | | | | | P | P | | | | | | | | | P | P | | | | | |
| Promoting/requiring resilient and resistant buildings (Flood adaptive architecture) | | | | | | | P | P | | | | | | | | | P | P | | | | | |
| Duties for surface water management | | | | | | | D | D | | | | | | | | | D | D | | | | | |
| Duties for surface water maintenance | | | | | | | | | | | | | | | | | D | D | | | | | |
| Duties for developing alleviation options | | | | | | | P | P | | | | | | | | | P | P | | | | | |
| Duties for developing assessing and approving alleviation options | | | | | | | D | D | | | | | | | | | D | D | | | | | |
| Promoting/requiring appropriate use of adaptive and non adaptive responses | | | | | | | | | | | | | | | | | V | V | | | | | |
| Promoting/requiring flood minimisation by flow management | | | | | | | | | | | | | | | | | D | D | | | | | |
| Promoting use of insurance as a FRM measure | | | | | | | | | | | | | | | | | | | | | | | |
| Promoting use of reserve funds as a FRM measure | | | | | | | | | | | | | | | | | | | | | | | |
| Duties for FRM programme development | | | | | | | | | | | | | | | | | D | D | | | | | |
| Duties for FRM programme implementation | | | | | | | | | | | | | | | | | D | D | | | | | |

**Table 3: Partner involvement in assistance**

This table may be used to identify the partners involved in assisting communities to prepare for, manage and recover from flood events. These partners should work closely with those identified in Table 3 to manage flood alleviation and avoidance. Because the partners in this table assist communities with all types of emergency and are very busy, all partners in the water and land management sector are advised to adopt a common framework to ease communication and improve the effectiveness of collaborative working.

| | | Exceedence pathways | Surface water and soil | | | | Groundwater | | | Drainage infrastructure | | | | Small Streams and ponds | Large Streams and ponds | Rivers and lakes | Artificial water bodies | | | Estuaries | Deltas | Fjords and inlets | Open sea |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | Rural green space | Green space at urban fringe | Green space within urban area | Developed urban surface | Artificial superficial deposits(Made, Worked, In filled, Disturbed or Landscaped Ground) | Natural superficial deposits | Bedrock | Sewers | SUDS/Source control | Pipe drain | Open Drain | | | | Drainage channels | Canals | Reservoirs | | | | |
| Preparing for floods | | | | | | | | | | | | | | | | y | | | | | | | |
| Flood warnings | Email | | | | | | | | | | | | | | | | | | | | | | |
| | SMSOn-line | | | | | | | | | | | | | | | | | | | | | | |
| | Door knocking | | | | | | | | | | | | | | | | | | | | | | |
| Responding to emergencies | Temporary flood protection | | | | | | | | | | | | | | | y | | | | | | | |
| | Emergency operations | | | | | | | | | | | | | | | | | | | | | | |
| The “All clear” process | Entscheidung treffen: Gefahr vorbei (alles klar) | | | | | | | | | | | | | | | | | | | | | | |
| Helping recovery | | | | | | | | | | | | | | | | | | | | | | | |

**Table 4: Stakeholders and their roles (110722)**

In this table A means an advisory role and D means a decision making role

The reference numbers of the stakeholders can be used in the completion of Tables 1 - 3.

MARE partners shown in red

| | Developers | | Long term ownership | | Interest | | | | | | | | | | | | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | Regulators | | | | | | | | | | Planning bodies | | | | | | | | | | Knowledge development | | | | | |
| | | | | | Wild life | | Heritage | | Environment | | Water quality | | Water quantity | | Emergency plannning | | Strategy planners | | Development control | | Building control | | Road/Transport | | Initiators | | Create state of the art knowledge | | knowledge maintenance | |
| | A | D | A | D | A | D | A | D | A | D | A | D | A | D | A | D | A | D | A | D | A | D | A | D | A | D | A | D | A | D |
| Public Authorities | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 1. City of Hannover | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x |
| 2. Region Hannover | x | x | | | x | x | | | x | x | | x | x | | x | x | x | x | x | x | x | x | x | | x | x | x | x | x | x |
| 3. Federal State Lower Saxony, Ministry | x | x | x | x | | x | | x | x | x | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | x | | x |
| 4. Federal State Lower Saxony, NLWKN (EA) | | | | | | | | | x | | x | | x | x | x | | x | | x | | | | | | | | x | | x | |
| 5. Federal Republic | x | x | x | x | | x | | | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | x | | x | | x |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 6.People, organisations and communities | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| e.g. University of Hannover as land owner | x | x | x | x | x | | x | | x | | x | | x | | x | x | x | | | | | | x | | x | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 7. interest groups | | | | | x | | x | | x | | x | | x | | x | | x | | | | | | x | | x | | | | | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| 8. Knowledge institutions | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |
| e.g. University of Hannover | | | | | | | | | | | | | | | | | | | | | | | | | x | | x | | x | |
| | | | | | | | | | | | | | | | | | | | | | | | | | | | | | | |

FV: 130115